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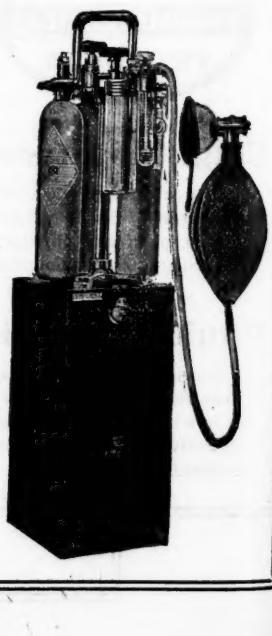

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ORIGINAL ARTICLES

TUBERCULOSIS OF THE UPPER AIR PASSAGES.*

LEWIS B. PORTER, M.D.
PROVIDENCE, R. I.

The great majority of tubercular lesions seen in the upper air passage are secondary to pulmonary lesions. Our literature contains frequent reports of primary tuberculosis and undoubtedly it exists in a greater percentage than has been accorded it. Carmody, of Denver, Colo., in an article on "Oral Tuberculosis," from which I shall freely quote, says, "That the mucous membrane of the oral cavity has not been attacked by disease with greater frequency has been a marvel for ages. The theories advanced to explain this apparent immunity are many: first we have the rich blood supply to the parts; second, thickened layer of epithelium; third, the constant movement of the tongue and cheeks, keeping the parts clean; fourth, the supposed germicidal activity of the salivary secretions; fifth, mechanical protection offered by mucous; sixth, protective action of various bacteria in being antagonistic to other organisms." Carmody gives the following forms of tuberculosis of the mouth: 1. Nodes and nodules. 2. Tuberculoma or tubercular gumma. 3. Tubercular abscess. 4. Tubercular papilloma. 5. Tubercular fissure. 6. Tubercular ulcer, lupus or tuberculosis. 7. Tuberculosis of salivary glands.

"Primary infection usually takes place through a solution of continuity of the epithelium, through either mechanical, chemical, or thermal origin, or through a cavity in a tooth in which the pulp has been exposed by decay. Cracks or fissures of the tongue or lips predispose to secondary infection. Nodular foci are very likely of lymphatic or haematogenous origin. Nodes appear on the tongue as small tubercles 1-4 mm. in diameter. The nodules or small yellowish lumps are produced by the fusing of several tubercules, which may be pinpoint or as large as a hazel nut. They ultimately break down or become calcified. It has been shown that tubercules may be absorbed."

"Ulcers may appear as fissures which in the early stages may be easily overlooked. Ulcers of the mucosa have the following general characteristics: 1. They are superficial and have a moth-eaten surface and covered by a grayish film. 2. They have a mildly red areola. 3. Edges are soft and irregular, the base is reddish and covered with granulation tissue, upon which small whitish tubercules seem to have been sown. The membrane about the ulcers is pale and flabby and may show tubercules scattered over its surface. Ulcers of the gums usually appear about the neck of a decayed tooth. Tuberculosis of the soft palate is apt to be an extension of tuberculosis of the pharynx or tonsils and usually appears very late in the disease. It progresses very rapidly so that the entire palate may be covered in 24 or 48 hours with tubercules. When located in the tonsillar region the ulcer may be deep and the tonsil may be wholly destroyed."

Tuberculosis of the Tonsil.

Weller of the Department of Pathology, University of Michigan, reports his findings on material from nearly 9,000 patients. He arrived at the following conclusions:

"1. The systematic search of a limited number of microscopic sections, so oriented as to show in each the entire surface of a vertically bisected tonsil, is the only practicable routine method for detecting tonsil tuberculosis.

"2. The incidence of active tonsil tuberculosis in a series of 8,697 consecutive cases was found to be 2.35 per cent. This minimum figure would have been increased by an unknown, but probably small, amount if it had been possible to examine all portions of each tonsil.

"3. The incidence in respect to sex shows tonsil tuberculosis to be slightly more common in females than in males at practically all ages.

"4. In the series of 204 positive cases here reported, the range of ages was from 2 to 59 years. The incidence in various age groups depends largely on the character of the population from which

*Read before the quarterly meeting of the Rhode Island Medical Society, December 7th, 1922.

the material is derived, the incidence being particularly high in institutions for the care of children and among medical students, internes and nurses.

"5. Tonsil tuberculosis may be divided into three types: focal crypt infections, ulcerative lupus-like lesions; and diffuse miliary tuberculosis.

"6. The crypt infection is the most common type, is usually unilateral, involves one or more crypt areas only and avoids the lymph follicles. Some of these cases are autoinfections in open respiratory tract tuberculosis but the majority must be considered cases of primary focal tonsil tuberculosis.

"7. The ulcerative lupus-like lesions result from the coalescence of crypt infections at the mouths of crypts or from direct extension from neighboring surfaces.

"8. The diffuse miliary tuberculosis is usually a bilateral or, if the pharyngeal tonsil is examined, a universal tonsil lesion. The tubercles are widely scattered and occur almost exclusively in the follicles and germ centers. This type can best be explained as a hematogenous miliary dissemination.

"9. Mixed types occur, as in patients with open pulmonary tuberculosis, in which autoinfection may be associated with hematogenous miliary tuberculosis giving a combination of crypt infections with diffuse miliary tubercules."

Lupus is a chronic tubercular disease of the skin and mucous membrane, and has special clinical features. It is characterized by the formation of nodules of granulation tissue, forming dark red or brown papules. It is slow and insidious in its development and is not necessarily associated with pulmonary tuberculosis. It passes through a number of phases and terminates by ulcer or atrophy with scar formation. Lupus of the upper air passages is nearly always secondary to lupus of the face, rarely is it primary. It appears as small nodules of new formed tissue, somewhat like granulation tissue, containing small spheroidal and large epithelial and giant cells. The tubercle bacilli appear in very small numbers. On the skin there may be an excessive production of epithelial cells over the infiltrated area or an ulceration of the new tissue.

The skin lesions are encountered more often than those of the mucous membrane as these cases usually fall into the hands of the dermatologists. Girls about puberty seem to be most frequently affected. Lupus of the mouth, either primary or secondary, is rare.

Lupus of the nose generally appears on the anterior portion of the septum or skin margin in the form of small nodules which coalesce and ulcerate and may disappear by absorption. The repair is feeble and usually leaves a pale blue smooth scar. The ulcers often reappear and may continue years without spreading. The nodules are firm, well marked and rarely attack cartilage or bone. Spontaneous recovery is exceptional. More commonly we have a non-ulcerative, exceedingly chronic patch with areas of cicatricial tissue scattered through it. When the disease attacks the end of the nose it will cause it to shrink up and convert it into cicatricial tissue.

Tuberculosis of the nose is a rather rare condition and appears in two forms: (a) a hyperplastic form, which is a round cell infiltration leading to tissue masses, the tuberculome, and (b) the ulcerative form. Both types are sometimes seen in the same nose. The ulcers are superficial, irregular, nodular, and covered with crusts. They bleed easily when probed and are painless, heal and break down.

Chamberlain's classification of nasal tuberculosis which he claims is the one generally adopted, is that of Zarniko. He speaks only of nasal tuberculosis, which he classifies in two main groups; first, the ulcerative, occurring as an end infection in emaciated individuals and complicating a preceding process in lungs, pharynx or larynx. Second, the tuberculoma or proliferative type, usually regarded as primary, and met with in strong, robust individuals, giving no other evidence of tuberculosis. The divisions made by others he regards merely as variations under the latter group. Individuals with nasal tuberculosis usually complain of nasal obstruction. There may be a purulent secretion accompanied by slight bleeding with crust formation. Chamberlain has found pain to be rare except in the ulcerative form. The growth is apt to be unilateral and on the anterior part of the septum. The inferior turbinate, the nasal floor and lateral wall are less often the site of the lesion. Chamberlain further says that the tubercle bacilli are practically never found in the secretions and often not demonstrable in the tissues.

In diagnosis, nasal tuberculosis is most liable to be confused with syphilis. Zarniko calls attention

to the following differences: tuberculosis involves primarily the cartilage syphilis; the bone; second, fetor is rare in tuberculosis and common in syphilis; three, in tuberculosis there is no inflammation of surrounding parts, but marked inflammation of surrounding parts in syphilis; four, in tuberculosis, headache and involvement of the trigemminus rare, common in syphilis; fifth, tuberculosis is a slow process, syphilis a rapid one. Chamberlain further mentions the Wassermann reaction, the administration of potassium iodide, the injection of tuberculin, as well as the histological examination.

Zarniko calls attention to the fact that we may find syphilis in a tubercular subject and vice versa.

Dworetzky, who has had a large experience at the Otisville Sanatorium in New York, divides laryngeal tuberculosis into four types: the peracute, acute, subacute, and chronic. His description I will give verbatim:

"The peracute cases of laryngeal tuberculosis, fortunately, are infrequent compared with any of the other forms. These cases are very rarely seen in the stage of edema, but usually present extensive ulceration and perichondritis. They are often accompanied by tuberculosis of the faucial tonsils and soft palate. Dysphagia and aphonia are always present, especially when the pharynx is involved. Emaciation is rapid, the patient is febrile and soon becomes moribund. Other organs of the body, such as the intestines and meninges, are often also involved. The peracute type usually begins as such, although occasionally it follows the acute type.

"The acute type is characterized by a soft edema of the larynx with a tendency to ulceration. It may begin as such, or it may follow the subacute or chronic type. It usually occurs in the advanced cases of pulmonary tuberculosis, often in moderately advanced cases, and occasionally in incipient cases. There is little or no tendency to fibrosis. Nodules consisting of tubercules can often be seen projecting above the surface of the mucosa. When the tubercules caseate they give rise to ulcers. During the stage of caseation the nodules often coalesce, with the production of extensive ulceration. The patient usually suffers from marked hoarseness or aphonia, a sensation of fullness in the throat, and irritation with a constant desire to expectorate. Dysphagia is of common occurrence and may be very pronounced, depending on the location and character of the ulcerations.

"The subacute type is characterized by a semiedema of parts of the larynx with a moderate tendency to fibrosis. It may begin as such or else follow the acute or chronic type. It takes a subacute course, has a tendency to healing and is usually benefited by treatment. Lesions with papilliform infiltrates and soft polypoid excrescences generally belong to this type. The local symptoms may be slight or moderate, depending largely on the site and extent of the lesion. Hoarseness, as a rule, is present, particularly when the true vocal cords or the interarytenoid sulcus is involved. Dryness of the larynx is generally complained of, and more so when the fibrosis is extensive.

"The chronic type offers the best outlook, and is characterized by firm infiltration of part or parts, with a marked tendency to fibrosis and healing. The lesion, due to an extensive proliferation of connective tissue cells, is usually limited in extent to the affected areas, and may remain so for an indefinite period. These patients suffer very little, and often, with the exception of occasional dryness in the larynx and slight hoarseness, have no symptoms at all. For this reason this type is very often overlooked.

"In rendering a prognosis in laryngopulmonary tuberculosis, although all other factors, such as character and extent of the pulmonary lesion, the general condition and mental condition, early diagnosis, etc., should be considered, the chief determining factor is the character of the laryngeal lesion itself. For it very often happens that a patient will be given a good prognosis based on his pulmonary lesion, only to have the prognosis changed when it is discovered that he suffers from an acute involvement of the larynx as well.

"The summary of my observations on the prognosis in laryngopulmonary tuberculosis, therefore, is as follows:

"In peracute cases, with or without involvement of the pharynx and regardless of the pulmonary lesion, the prognosis is bad, and the life of the patient is from a few weeks to a few months. Here, as a rule, the patient dies from an overwhelming toxemia and from inanition caused by dysphagia. Local treatment is of no avail and is not indicated except for the relief of pain. Our aim should be to make the patient as comfortable as possible.

"Acute cases often improve under skillful treatment, and when the pharynx does not show microscopic involvement and the pulmonary and general

conditions are at all favorable, the prognosis is not hopeless. These patients should be kept under a careful regimen and persistently treated generally and locally. They often improve and occasionally become completely cured.

"The subacute cases present a good outlook, and the prognosis depends a great deal on the pulmonary lesion and timely treatment. With good general care and with proper local treatment the laryngeal lesion becomes fibrosed and chronic.

"The chronic cases present the best outlook. Patients with this type of lesion usually get along best under general treatment alone. The prognosis as to life is hardly ever influenced by chronic laryngeal tuberculosis, and therefore in rendering a prognosis in these cases the larynx may be entirely disregarded."

St. Clair Thomson, who has had extraordinary experience in the treatment of tuberculosis, when asked upon what signs he depends outside of active ulceration, replied, "The chief thing in diagnosis is the skilled eye of the diagnostician, because it is almost impossible to put down in words the condition that one sees. It is not only the conditions but the slight changes in these conditions with progress or temporary improvement. Briefly, pallor is a suggestive thing, whether pallor of the soft palate or of the epiglottis and larynx generally, though, on the other hand, particularly among men and among elderly subjects, congestion may be met with. Then I hold a great deal with comparing very carefully with one's eye the two sides of the larynx, because if there is a congestion or a catarrh or a thickening, such as a syphilitic infiltration, it is more likely to be more or less evenly disposed on both sides, whereas, if it is on one side, it is much more suspicious of tubercle. Then I think that the favorite spot to find an early tangible sign, what you call a physical change, is just about the vocal process, hidden to a great extent because it is low down on the laryngeal surface of the arytenoid, just where the arytenoid and the vocal process join one another. One has to see some patients several times to determine that the little hollowness there, the little solution of continuity, or a little crinkling, or a little infiltrated crinkling, is an early deposit. These are, of course, present in the later stages when there is ulceration and perichondritis—the thing is to recognize the early stages. Sometimes, of course, we have a change of voice, but I have records which will be published one day, of a considerable number of people who had no complaint of the larynx, whose voice was not changed, and yet who had distinct tuberculosis."

PYORRHEA: ITS CAUSE AND TREATMENT.*

By Michael Laurence Mullaney, D.D.S.
Providence, R. I.

I am grateful for the honor afforded me to appear before your honorable body, to give expression in the reading of a paper of a disease which is well known to you. Knowing your interest in all things which pertain to the anatomy of the human body, I hope that this paper, although dry and uninteresting to you, in comparison with other papers which treat of subjects more in line with your immediate work, will not be without some fruit, and not an imposition upon your time and patience.

The subject which I am to present to you tonight is one which is particularly interesting to me, and if I can impress upon some of the doctors present the fact that much of the peridontal disease which exists today could easily be prevented, and much of it cured, then I would deem the labor expended as work that was worth while.

The normal mouth is so made up that ordinarily it contains thirty-two (32) teeth, so arranged that the upper and lower teeth might be in co-ordination with their antagonists during the various movements of the mandible. The contact points give mesial and lateral support as well as serving at the same time, as a protection to the delicate underlying peridontal membrane.

There is, generally speaking, a triple function of the teeth, the first is called prehension, the second mastication and the third that which aids in speech.

At the gum line, which technically is called the cervical margin, we find a soft tissue which lies in contact with the enamel although it is not attached to the tooth surface. This is called the marginal gingiva. This tissue acts as a guide for the food passing from the tooth to the underlying tissues, thus preventing food particles from accumulating around the necks of the teeth.

*Read before the Providence Medical Association, April 2d, 1923.

Beneath the marginal gingiva we find the cemental gingiva, which is attached to the cementum of the root, and affords a support to the marginal gingiva on the labial and lingual surfaces, as also it gives support to the marginal or the interdental papilla, between the various teeth.

The pericementum serves to retain the teeth in their sockets, by means of a series of delicate fibers which branch out in many different directions, thus holding the teeth in their respective places.

One set of these fibers we find functioning so that rotation is prevented, another set to resist lateral pressure, while you find another group which is helpful during vertical pressure. At the apex of the root, where it acts as a cushion, we find this pericementum broadening out. This membrane has also a tactile sense which becomes greatly developed during inflammation caused by any mechanical irritant.

Covering the root is the cementum and this acts as a protective agent for the underlying dentine. Acting as a support for the teeth and the above mentioned membranes is the alveolar process. Such, gentlemen, is a brief outline of the tissues which we are to consider this evening.

Until lately all diseases affecting the investing tissue of the teeth have been called pyorrhea alveolaris. Furthermore, all these diseases have been treated in the same way, hoping thereby to effect a cure. The term pyorrhea alveolaris, better known as Riggs' disease, has been understood to mean a flow of pus from the alveolar bone. In many cases we find pathological conditions of the membranes which give no signs of pus, and in those cases where pus is found, rarely does it proceed from the alveolar bone. Under the terminology adopted by the American Academy of Periodontology, the tissues which give their support to the teeth are known as "Periodontium."

There is another term which now has general use; it is "Periodontoclasia," and is used to denote the breaking down of these tissues.

These diseases are further classified by the manner in which they attack the tissue. All forms of periclasia are necessarily inflammations but still this inflammation is not always visible in each type. When it is found that the gingiva and the alveolar bone has wasted away, inflammation is visibly absent. This type is called ulatrophia, of which there are two kinds: traumatic and ischemic. In the traumatic type, it is found that the gums hold their normal color and show a recession of both gingivas, exposing the cementum. The ischemic presents a like condition with the exception that the gums have a pale color. The term Gingivitis is used when the marginal and cemental gingiva show redness, and has four subdivisions, namely: chronic, hypertrophic, indolent and phagedenic. In the chronic type the marginal gingiva is the color of a carmine red, with a swelling of both gingivas, with rounded crest, having no pocket formation, at the same time very sensitive, yet not painful, with possible pus formation. The hypertrophic presents the above conditions as found in the chronic, except that there is found a hypertrophy of the marginal and cemental gingivas.

A vermilion redness is found in the indolent type, with little swelling of the marginal and cemental gingiva and usually it gives great pain. While in the phagedenic, grayish white masses on the crest of the marginal gingiva are found, having the underlying gingiva a bright red color, fetor of breath, and excruciating pain.

The breaking down of the alveolar process is what is known is Alveolaclasia, and has two types, traumatic and atomic.

The traumatic type presents the following conditions, the teeth are loose, there is no pocket formation and the gingiva is red. The same conditions are found in the atomic as above related, but with a thickening of the marginal gingiva.

When the pericementum loses its continuity it is called Pericementoclasia and is characterized by the following symptoms: pocket formation, mobility of tooth, pain and tenderness, crest of the marginal gingiva rounded, microscopic pus formation, and absorption of the alveolar bone.

Adami has defined inflammation as a series of changes constituting the local manifestation of the attempt at repair of actual or referred injury to a part; also that inflammation is a reaction to either bacterial, chemical or mechanical irritants.

In the peridontal regions we find that while the bacterial element is present, it is secondary in importance to the mechanical factors.

Since the gingival tissue is highly elastic, it accommodates the increased fluids during inflammation, and because of the reserve force, it may remain unchanged as to position and size during inflammations of long standing. No tissue or cell is

normally in action to the limit of its power, since normal activity is greatly below what the cell is capable of performing, therefore irritants which are after all simple excessive stimuli up to a certain point, do not overtax and thus does not lead to disintegration of the cell or tissue.

Considering the pericementum we have a far different picture. It being located between the walls of greater density than itself, it cannot accommodate the result of the inflammatory reaction, and thus a continuation will cause the tooth to rise from its socket or cause an absorption of the alveola bone.

The alveolar process, on account of its dense and unyielding makeup, cannot accommodate the volume of fluid and dissolution rapidly takes place through the action of chemical irritants and the osteoclasts.

The etiology of periodontal diseases has been one of the most disputed points in the field of dental disease, because of the fact of the variety of causes concerned, together with the effort to establish one supposedly universal factor.

One authority has given one course, while another has given a different one, which may be true in some degree in a specific case under observation but quite untrue when applied to the whole subject.

The etiology may be stated as being a disturbance of function. The causes of periclasia are many and of endless variety of combinations. Yet they can be classified to make periclasia etiology comprehensible.

To begin with we must consider three fundamental hypotheses. First: the causes of periclasia are primary or inaugurating and secondary or non-inaugurating. This follows closely the accepted division of causes of general disease into predisposing and exciting, yet there is a difference. In the latter the exciting is the more important and that which we attempt to treat. While in the treatment of periclasia the primary or inaugurating is always the important factor.

In the past the profession has sought out a single cause which has generally been secondary and has attempted to treat these secondary causes by medication. The results obtained we know too well.

The second hypothesis is that the etiology is always compound. No one causative factor can of itself inaugurate any form of periclasia.

For instance in a case of suppurative periclasia, the susceptibility to bacterial infection depends upon the lowered resistance of the tissue. To make it possible for pyogenic infection of the peridontal tissue to take place, they must be lowered in resistance to a point where they are unable to ward off the invading bacteria.

This is brought about by one or several agencies, which, on account of the part they take in lowering the resistance of the tissue to a point where the bacteria may invade, we call primary factors. Only after such tissue depression do we note the action of the pyogenic bacteria, which constitutes a secondary cause. Again, the primary factors do not cause disease without the action of the secondary factors.

For instance, we find salivary calculus in mouths free from any form of peridontal disease. Pathogenic bacteria are found in every healthy mouth. Traumatic occlusion is at times found in healthy mouths, but if these foregoing elements are all found we are almost certain to have a case of suppurative pericementoclasia. The third hypothesis: the inception and cause of peridontal diseases are under the control of pathogenic and non-pathogenic forces.

While we might have in a mouth all the factors capable of producing disease, it can only be inaugurated when the pathogenic forces over-balance the non-pathogenic. The primary causes, with a few exceptions, are mechanical irritants. The functions of the teeth being mechanical, not chemical, it is logical to expect this. Abnormal systemic conditions may at times occur, as primary factors,—such as in scurvy, but such cases are rare.

Mechanical irritants may produce injury in two distinct ways. First by an abnormal force which effects the entire peridontal tissues. Secondly by an impingement or irritation at the cervical margin, which would transmit the injury to the deeper tissues. These two forms of irritants produce injuries widely different.

A crown which has no semblance of fitting the tooth at the cervical margin, yet whose occlusion is good, may be worn for years without any symptoms other than a slight gingivitis. On the other hand, the crown may be perfect in fit at the gingiva, but if the occlusion is faulty, it will cause pericementoclasia through trauma, or traumatic occlusion.

Among other primary causes are malocclusion, restorative defects, abnormal tooth form, habits of occlusion, impingement of restorations caused by faulty contact of teeth and improper methods of using the tooth brush. Chief among these and the greatest destructive agent is traumatic occlusion.

The secondary causes include abnormal tissue tone, chemical irritation and predisposing local conditions.

Systemic diseases, while they show at times a depressant effect upon the peridontal tissues, are always secondary. Some diseases present their symptoms upon the oral tissues, although they do not affect the health of the peridontal tissue. Diabetes and syphilis show a more marked effect upon these tissues than do other diseases. These diseases will not, however, retard the return to health of the peridontal tissues if the proper systemic treatment is being administered. Diet is considered secondary and although it undoubtedly is important, further work is necessary before anything definite can be held.

As stated above, traumatic occlusion is the chief offender among the primary factors. Occlusion has been defined by Angle as the normal relation of the opposing inclined planes of the teeth, when the jaws are closed. For this definition to be considered properly it must be taken for granted that the teeth are of such form that they will be in normal position during the various positions of the mandible during mastication.

As I have already said before, the teeth have the function of mastication. In all carnivorous or flesh eating animals the masticatory movements are hinge like, allowing no extensive lateral movement of the mandible. First, because the temporal mandibular articulation does not permit much lateral movement. Secondly, because of the excessive length of the cusps of the opposing teeth. In the herbivora, the effective mandibular movements are almost entirely lateral, the teeth showing very small cusps. In the omnivora the effective masticatory movements are hinge like, as well as lateral. The occlusal surfaces of the teeth consist of planes, ridges, grooves and cusps, so arranged that in unilateral movements, the cusps of the lower may glide between those of the upper teeth in various different paths, without interference. Since man is omnivorous, the human masticatory apparatus, while modified somewhat from the lower animals because of different habits of life, corresponds in general to mammalia of this class.

Most of the masticatory movements being lateral or nearly lateral, it is readily seen that great injury will be inflicted upon the peridontal membranes if the cusps of the opposing teeth are not in co-ordination. Traumatic occlusion is an abnormal occlusial stress which is capable of producing an injury to the periodontium. It may be had by interference of the oscillating movements of the mandible through abnormal relationship of the occlusal planes; by occlusal stress, delivered at an incorrect angle, by the opposing teeth or by the supra-occlusion of a tooth as related to the line of occlusion. All causes of traumatic occlusion present one of these three conditions. The first condition is observed in mouths where there is a decided lingual or buccal tipping of the roots of the bicuspids and molars. This causes an abnormal stress on the peridontal tissues of the teeth concerned.

The second point is illustrated in cases where a molar or bicuspid has tipped mesially, due to the extraction of another tooth in the same arch or failure on the part of a dentist to restore proper contact on adjacent teeth which it was necessary to fill. This condition is mostly brought about by the extraction of the first permanent molar. On account of it, erupting posteriorly to all of the temporary teeth, it is often neglected until such time as it is impossible to restore it to a condition where it will function.

Dr. Thaddeus P. Hyatt, dental director of the Metropolitan Life Insurance Company, after a recent investigation reports that in the examination of 5,000 adults, men and women in two different industries, he found 47% of the first molars, 17% of second molars and 14% of second bicuspids lost. This means that 78% of 5,000 people had traumatic occlusion, or were susceptible to it. Is it any wonder that peridontal disturbances are so prevalent?

The third factor is found in patients having extremely narrow arches, causing an elongation of one or all of the anterior teeth, or it may be caused by an infra-occlusion of the bicuspids or molars. High occlusial fillings will also come under this same classification.

In every mouth in which we find traumatic occlusion we find certain areas which are distinctly

marked but there is further, a circulatory disturbance of the pericementum resulting in a lowered resistance which finally produces a lesion; the most noticeable being a pocket formation.

When abnormal stress is exerted upon a tooth the alveolar crest acts as a fulcrum, therefore the crest and that portion of the pericementum lying just below, together with the marginal and cementum gingiva are the most affected.

The bone constituting the crest being very rigid makes it a point of resistance to pressure. In many cases the first tissue change will be the absorption of this crest followed by a circulatory disturbance in the marginal gingiva. This allows an infection of both gingivas. The tissue now being lowered in resistance allows a bacterial invasion of the pericementum, leading to superficial pocket formation.

Continued pressure on the alveolar process with its loss of function, through destruction of the pericemental fibers and the extension of the inflammatory process, causes a further absorption of the bone. This is coincidental with a further severance of the pericemental fibers. These phenomena are the factors in the formation of the typical pus pocket.

Treatment: Etiology has revealed that mechanical irritants, lowered resistance of the tissue, and invasion by pathogenic bacteria to be the outstanding features. In the treatment efforts are directed to the relief of the irritation, reduction of the bacterial count and stimulation of the vitality of the cell.

As traumatic occlusion is the greatest offender in the inaugurating causes, the first step is to restore it to normal.

The ideal treatment would be orthodontic, but this is impossible in most cases, first on account of the age of the patients usually affected, and second because of the time required.

The correction may be made by grinding the occlusial surfaces so that they will be in co-ordination. After this step has been completed all deposits must be removed from the teeth and attention given approximal contact points. All infected teeth are removed and restorations placed in cavities.

Instead of trying to reduce the bacterial count by medication as it has been tried in vain in the past, the elimination of the culture media is brought about mechanically by scaling the exposed root surface, removing all debris, hard and soft deposits and denuded cementum. These accumulations furnish a rich media and retain the bacteria in contact with the vascular tissues.

While the vascular tissues are the object of the attack of the invading bacteria, it is only possible when the tooth surface furnishes such a habitat that they be capable of proliferation.

Lost teeth are replaced by prosthetic appliances, special attention being given to the occlusion of the same.

Finally, the patient is instructed in mouth sanitation and how to obtain the best results with the tooth brush, it being used in such a manner that in addition to cleaning the tooth surface it will act as a stimulating agent to the gums.

CONVERGENT SQUINT IN CHILDREN.*

By Dr. James W. Leech.
Providence, R. I.

It is not my purpose in this short paper to discuss the various theories, however interesting, which have been offered as determining the causation of convergent squint, but rather to touch briefly upon what appeals to me of practical importance in our conception and treatment of this condition; and at the outset, may I emphasize the necessity of our impressing upon the laity and also upon those of our own profession whose activities in other lines preclude a wide experience in these cases, the importance of instituting treatment in convergent squint at the earliest possible moment. It has been the experience many times of all of us to be told that the nurse, or the family physician, has told the parents to do nothing about the "turn in the child's eye until 5 or 7 or 12 years of age." By what process of reasoning these particular ages have been selected as the proper age for beginning treatment, I have never been able to fathom, but suspect that it is a sort of defense reaction against assuming responsibilities.

The time to start treatment for convergent squint is as soon as possible after the first, often fleeting, suggestion of lack of parallelism of the optical axes is observed, even in the first year of

*Read before the regular meeting of the Ophthalmological and Otological Society of Rhode Island, April 12, 1923.

infancy. Manifestly, this does not apply to the motor inco-ordination of the eyes usually seen in the new-born. But given a history of deviation of one eye in a baby even of 6-8 months of age, I think treatment by the use of weak atropin solution, ¼% in both eyes for a week every month or two, with daily occlusion of the fixing eye should be begun at once. Such cases are fortunately rare and usually the squint does not make its appearance much before the second year—a period in child life which may be said to mark the incidence of the so-called diseases of childhood. And in this connection it is to be remarked that the frequency with which the observation is made that the squint appeared after whooping cough, measles, or a gastro-intestinal disturbance leads one to feel that while the diseases above noted are in no sense causative factors, nevertheless they do become contributing factors. I am inclined to believe that these contributing factors, by lessening body resistance and upsetting neuro-muscular control and co-ordination, permit the potentialities of squint to become **actual.**

In actual practice, our management of squint cases is roughly divided into two classes, i. e., young children up to 4 years of age in whom visual acuity tests are impossible and, second, those whose co-operation by reason of age and mental attainments makes the determination of visual acuity possible.

In the first class of cases, infinite patience is needed to make even the most elementary examination of alternate covering of the eyes, and ophthalmoscopic examination to eliminate fundus lesions which in the majority of cases would cause the abandonment of hope from treatment. A solution of atropin ½ to 1% three times a day should be used in both eyes for three days and the child returned for retinoscopic refraction. Incidentally, it is always wise to warn the mother of the possibility of atropin poisoning occurring, evidenced by extreme restlessness, wakefulness, delirium and flushing. With these small children retinoscopy is best done at arm's length, holding the successively stronger lenses in one hand before the eye for a few seconds until the mirror tells us the point of reversal has been reached. These little children will not tolerate for a minute the cumbersome trial-frames and I have found they become more quickly habituated to their spectacles if smoked glasses are furnished them during the period of atropinization. It is manifestly impossible and, I believe, in very small children of negligible value, to accurately determine the amount and axis of low degrees of astigmatism at this time, preferring to correct the major portion of hypermetropia and deferring the finer astigmatic correction to a later date.

In the older children, even those who do not know their letters or numbers, a fairly accurate estimation of the visual acuity is possible by the use of the "dummy E" chart, particularly if the examiner will give enough time and patience to stimulate the child's interest in it as a sort of game. In these cases, the astigmatism can be and should be accurately determined by retinoscopy and trial lenses. The full astigmatic correction and within one diopter of the full hyperopic correction should be ordered.

I shall doubtless be taken to task for not having made reference to methods of measuring the degree of squint. I, therefore, anticipate the criticism by expressing my feeling that the tests we have are too cumbersome or too complicated for these children to be of practical serviee.

It is desirable that the cycloplegic be continued until the child has his glasses, thereby getting a gradual return of accommodation with a minimum of blurred distant vision. The glasses should, of course, be worn constantly and the mother's fears that the child will fall and break the glasses and probably cut the eyes, can be honestly assuaged by the assurance that such accidents are indeed of the rarest. I have no hesitation in putting glasses on children of 18 months and have never seen a child's eye traumatized by breaking his glasses.

At one time for a considerable period I prescribed bifocal glasses, the paster +2.50 diopter stronger than the distant correction, but I have abandoned their use because I was not convinced that the segment for near vision aided materially in the correction of the squint. The paster before the squinting eye usually had to be displaced eccentrically inwards to be of service to the converging eye and this gave a bizarre, antiquated appearance to the child, provoked questions and often were a very valid excuse, it seemed to me, for the child refusing to wear his glasses at all. Moreover, the question arose in my mind whether whatever gain on the squint I might thus make was not

counterbalanced by the weakening of accommodative power which the long-continued use of lenses for near would likely bring about. I therefore discontinued their use.

With the fitting of glasses, however, our treatment by no means ends. Indeed, I feel that orthoptic treatment is of almost, if not of equal, importance.

In this, as in every other sort of training, regularity and routine are of prime importance, and it is my custom to order an occlusive eye-patch to be placed over the fixing eye behind the spectacle frame at meal times. I select this time for two reasons; first, the normal child is usually so interested in his food as to be less concerned with the occlusion of this better eye, and, second, this gives about one and one-half hours daily of training of the vision of the defective eye. Many children object to the patch and I have lately avoided this by ordering a second pair of spectacles for the training in which the deviating eye is furnished with its correction and the lens before the fixing eye is opaquely ground.

A second means of orthoptic training I use, is the regular instillation of the atropin solution in the fixing eye for the first week in every month. This fixes the regularity of the regime and provides for certainly two weeks of each month in which accommodation and, therefore, visual adaptation is possible in the poorer eye alone.

With improvement in the vision of the defective eye will come psychic development and a desire for that eye to partake in the visual act and it is, therefore, highly desirable to stimulate and develop as early and as thoroughly as possible the fusion sense. This must be done early, certainly by the sixth or seventh year, else it is debatable whether fusion thereafter ever be attained. I have discarded the amblyoscope in this work. Patients cannot give the necessary time for its use in the office, nor can the busy ophthalmologist; it requires considerable manipulation of illumination to be properly worked; and its occasional use is a waste of time and energy. I do think that the home use of the stereopscope every day or two with frequent enough changes of pictures to keep up the child's interest is of value and for this purpose I furnish these patients with a set of Kroll pictures which, by judicious use on the part of the parent can be made an amusement for the child as he tries unconsciously to fuse the pictures.

Squint cases should be re-examined at intervals of six months at first, later a year, and it should be impressed upon the parents that these visits to the oculist are for observation and not necessarily for a change of glasses. If manifest refraction on any of these occasions suggests a change of lenses, the child should be given another course of atropin and the static refraction carefully determined and made a check upon the dynamic refraction.

Operative interference in squint by tenomies and advancement I reserve for alternating squint with good vision in each eye, and for cosmetic purposes and should be considered a *"dernier resort,"* especially in the latter.

In conclusion, then, our treatment of convergent squint in children comprises:

1. Atropinization. 2. Correction of errors of refraction under atropin. 3. Constant use of correcting lenses. 4. Orthoptic training by the daily use of occlusion of the fixing eye, elimination of accommodation of the fixing eye by monthly atropinization of that eye, and stereoscopic education of the fusion sense. 5. Operation.

As to the question when I would operate in convergent squint in children, I would answer with Pinafore, "Well, hardly ever."

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R. I. Ophthalmological and Otological Society—2d Thursday—October, December, February, April and Annual at call of President Dr. H E. Blanchard, President; Dr. Jeffrey J. Walsh, Secretary-Treasurer.

The R. I. Medico-Legal Society—Last Thursday—January, April, June and October. James B. Littlefield, Esq., President; Dr. Jacob S. Kelley, Secretary-Treasurer.

EDITORIALS

HYGIENE.

Hygiene may be defined as comprising those factors which make for health. It is preventive medicine applied to the individual rather than to classes or bodies of people. It is based on what used to be called the rules of health, and they are as substantial and useful as they ever were. There is hardly any branch of medical or social science to which this religion of applied physical common sense is not appropriate. Without it, medical and surgical treatment is rarely entirely successful; its rules unobserved, good health brought about by medical and surgical skill will not continue. It may be said that this comes near to what is commonly called "domestic medicine," upon which subject we know of no safe and sane volume, and this is in a way true, yet it rests upon the soundest of biologic principles and upon the very same experimental studies which have established the basic principles of scientific medicine. In therapeutics two tendencies are observed—one to understand and employ a few drugs and remedial measures, the other towards the most outrageous polypharmacy, as evidenced by numberless new prepara-

tions offered by commercial houses and hastily adopted by the unthinking. Many of these owe their efficiency to some well known drug and many of them to the unconscious application of some well known principle of hygiene.

The popularity of specialism, the varied laboratory tests, the frequent invocation of surgery, and the rush of professional activity has caused us to forget some of these fundamental factors and that the first questionings in the taking of case histories and the last instructions at the conclusion of treatment should be along the lines of hygiene.

Hygiene offers a means of interpretation of many of the perplexing phenomena of mental conditions. These are now being thoroughly investigated by the neurologist, whose propaganda for mental hygiene must be ranked as one of the most conspicuously important medical movements of the time.

In the rather weak stand that our profession has taken regarding the indiscriminate use of alcohol we have shown not only a woeful lack of knowledge of the economic aspect of intemperance, alcoholism, criminology and allied subjects and of human nature, but it has overlooked the fundamental principles of health and hygiene.

In the study of gastrointestinal cases the lack of a knowledge of hygiene is very frequently seen. Books on dietetics solemnly recommend as food things that are well known as indigestible and harmful.

While it is true that the perfect digestion will under some conditions digest almost anything, it is equally true that perfect digestion, or for that matter, perfect anything, is very rare, almost theoretical in its nature. Yet we have yet to see a professional book which states that certain articles of food are indigestible and should be avoided by all except those of robust health, leading out-of-door life and performing physical labor. Nor can one find a protest against the absurdly varied diet of the well to do classes or the urging of simplicity of food.

We bespeak the interest of the medical profession in the establishment and maintenance of nutrition clinics in connection with the lower grades of the public schools. Even a superficial review of the work is quite enough to merit our unqualified endorsement and hearty co-operation.

In fact, we should be interested in the entire problem of nutrition, not only of the under-nourished but also of the more normal pupils of all grades. The Parent-Teachers' Association has put us to shame in their support of these vital enterprises.

The application of the sterling principles of hygiene are of particular importance in the life of today, a life which is certainly very different from that of our fathers. Longer hours of labor, for the present popular eight-hour day is not followed by much more than half of the industries, the use of artificial light, the high cost of food, clothing, fuel, and poor housing, have made conditions far different from those of fifty years ago. The concentration of population in large cities plays a large part in the housing situation.

Of particular importance too is the amusement craze, a social condition of unusual and unique features. This is a psychological entity quite unheard of in the past, and to meet this absurd craving, opportunities for innocent and harmful amusement are varied and many. Some of them lead to such late hours that many working people do not get enough rest or sleep. The correction of this error alone is sometimes enough to effect a cure in a given case. The sociologic and moral degenerations resulting from this defect in the life of today would require much time and space for their proper discussion. The results of a diet of pictorial, artistic, musical and literary rubbish are far reaching and it is the duty of the medical profession to lend its aid and assistance to all efforts and movements which have for their object the cleaning up of the "movie," the press and the stage. The gospel of cheer, sunshine and fresh air and clean amusement is as practical a form of hygiene and will have as helpful an influence on the life of a people as any branch of education offered by schools in the general preparation for life.

Hygiene, then, is the very basis of sanitation, preventative medicine, social health and advancement. It is the duty of the medical profession to ever bear in mind its fundamental truths, to apply them to individuals before other methods of treatment are instituted and by constant watchfulness and repetition educate people in the guiding precepts of their own welfare.

ANOTHER VICTORY—INSULIN.

Progress on the extended battlefront in the war which man is waging against those factors which tend to destroy his health and decrease the span of his life is for the most part a matter of short advances here and there along the line. Little by little, by carefully planned and painstaking investigation, one objective after another is reached and the positions consolidated by careful tests and repetitions of the work, until a really appreciable gain has been made. In some sectors the advance is much more rapid than in others but everywhere it is as a rule slow, a matter of a few meters, here and there, a few more elsewhere, until the whole front line has been pushed forward a little way.

From time to time, however, there is executed somewhere along the front, a brilliant *coup*. At a single rush seemingly impassable obstacles are surmounted and the lines of understanding are pushed through the no man's land of conjecture well into the territory of ignorance, often beyond the original objectives. Thus a salient is formed which is continuously widened and greatly enhances the speed of advance throughout the whole sector.

Such a brilliant drive is illustrated by the development and perfection of insulin in the treatment of diabetes, and the profession is hard at work at present consolidating the positions won and extending the lines. The original discovery of the method of extracting the internal secretion of the insular tissue of the pancreas has been referred to as an "accident." It is not the same sort of accident that led Sir Isaac Newton to his brilliant conclusions on the subject of gravitation; the result of a keen mind applied logically to a problem and coming unerringly to an almost obvious conclusion; to which hundreds of others had, peculiarly enough it seems to us now that we know the answer, been totally blind. Who can doubt that the mists of the great hinterland of ignorance which lies just beyond the outposts of scientific advance, is teeming with just such discoveries, which are waiting to reward the efforts of anyone with a good training and independent mind who is willing to sit down and think?

Even more than the brilliance of the discovery of insulin, the ideal methods of its study, production and application, are deserving of praise. Freed from the start of any possibility of being commercialized, the sole object of the work has been to perfect and standardize the product, determine its value, the best methods of using it and the dangers involved in its use; and to make it available for all diabetics that may need it. These objects in the almost incredibly short space of a year and a quarter have been almost completely attained. Already it is announced by the research division of the producing company that the supply is sufficient to "meet any clinical demand that may be created." The detailed clinical reports of the Toronto investigators are soon to be published so that specific information as to the use of the product will be within the reach of any practitioner. Although at present the insulin is being sent to a limited number of investigating clinicians, it is probable that within a few months it will be available for the profession in general. The price is being systematically reduced as rapidly as is consistent with maintaining the standards of production.

When one meditates upon the depressing spectacle of the squabbling diplomats of the European nations, and the tremendous force of national selfishness as exemplified in the recent conference at Lausanne, and one's faith in human nature has reached thereby its lowest ebb—it is refreshing to contemplate such an achievement as the discovery, study, production and distribution of insulin, an undertaking begun and carried out by men of the highest talents and ideals, and a model for all similar procedures in the future.

PHYSICAL LAW.

How much morphine does a man need when in pain? How much food does he need in health? How much alcohol (if any) does he need in sickness? With any or no medical treatment, how long will it be before recovery takes place?

These are a few of the questions that may yet be decided by the unqualified, untrained and scientifically unsophisticated minds that have the presumption to dictate the destiny of health and life.

These may be answered in centuries to come, when by the aid of scientific principles and deductions, the ingestive, digestive, receptiveness, repugnance and the entire physical capacity, some generations before birth, have been exactly determined—and not before.

The liquor privileges have assuredly been abused by some physicians, but the abuse of a law has nothing to do with principle and if in his honest

opinion, alcohol is to be of benefit to his patient, a physician should in no sense be restricted in its use. The recent ruling of a Federal judge is simply a corroboration of our attitude that practicing physicians throughout the country are possessed of a better knowledge of medical requirements than men of the streets or those who hold high office as a matter of political preferment.

Diseases cannot be wished away, active measures are often urgent, and while a physician may be opposed to morphine, he must sometimes use it; the surgeon does not like to amputate a foot or hand, still it may be necessary to save life.

All measures that may conduce to save life, whether alcohol, surgery, morphine or what-not, should be considered irrespective of moral or esthetic aspects and any person or combination of persons who would deny the application of *any* agent that may relieve a pathological condition, evinces an unbalanced mental equilibrium and perversity which, robbed of its assininity, might still foster a belief in witchcraft, the exposition of idols to defeat enemies or repose a confidence in the fetish of magic incantations.

We are willing to be directed but not restrained. We are decidedly on the side of temperance, but not on the side of medical peonage. In our opposition to federal dictatorship that appears to be a ruling against our efforts to preserve health and life, we might well paraphrase the great Cicero's historic lament: "How long, O Catiline, wilt thou abuse our patience*?"

*Spell it either way.

THE NARCOTIC PROBLEM.

We are appalled when told that in America it is estimated that there are at least one million drug addicts. This, at first blush, seems incredible, but the estimate is based upon information derived from authentic sources.

In spite of stringent laws, rigidly enforced, the number of addicts is increasing and the amount of opium and morphia entering the United States is truly astounding. This country leads the world in this shameful traffic. The following presumably authentic statement is illuminating: the average consumption of opium (and its derivatives) per person annually is, in Austria gr. ½, Germany gr. 2, France gr. 3, and U. S. A. gr. 36. Also, it is said that 90% of the opium used is for other than medicinal purposes. If the above statements are even remotely true, and there seems little reason to question their accuracy, then, indeed, the narcotic problem looms up as a gigantic one.

We are just beginning the real study of the problem because only recently have we accorded it a proper scientific consideration. In other words, we are now checking up our former theories and practices on this subject and are beginning research, discussing various phases, and are having appointed committees for investigation. Recently Congress has had before it a resolution which calls for the appointment of a committee made up of physicians, in Congress, to investigate the different phases of this formidable question.

In a report to the assembly of the League of Nations last September it was pointed out that as long as dangerous drugs are produced in quantities exceeding all legitimate requirements, a great danger exists that the surplus will find its way into illegitimate channels. This view was endorsed by the assembly of the League of Nations.

It now is considered as a medico-sociological problem and because of the renewed interest by the different groups of investigators, it is in a better way to be solved than it could possibly have been, as it was viewed in the past.

The feeling that it is a disease—a chronic intoxication—and the unfortunate victim should be treated as a sick person rather than a criminal, is a step in the right direction and promises for the future a broader view of the problem and a more rational solution of this exceedingly important subject.

SOCIETIES

Providence Medical Association.

The regular monthly meeting of the Providence Medical Association was called to order by Dr. William B. Cutts, the President, at 9:00 P. M., March 5, 1923. The records of the last meeting were read and approved.

The Standing Committee having approved the applications for membership of the following men: Francis H. Coone, Ulyer Arthur Persky, Clarence L. Scamman, the Secretary was instructed to cast one ballot for their election.

Dr. Ernest Laplace, of Philadelphia, spoke on

"Pasteur, the World's Greatest Benefactor." Dr. Laplace, who was the only American student of Pasteur, gave an enthusiastic and convincing characterization of his teacher, whom he spoke of as "with one exception the greatest man who ever lived." He described shortly Pasteur's life work, telling of his own help in the experiments on rabies about 1886. A striking incident was his own showing of one of the bouillon flasks used in the classical experiment demonstrating the action of micro-organisms; this flask having been presented to Dr. Laplace by Pasteur. The address undoubtedly made a strong impression on all present.

At the suggestion of the President the meeting stood silently for thirty seconds as a tribute to Dr. Laplace and the memory of Pasteur. On the motion of Dr. Skelton, the Secretary was instructed to write a letter of appreciation to Dr. Laplace.

The meeting adjourned at 10:15 P. M. Attendance, 74 members, 6 guests. Collation was served.

Respectfully submitted,
PETER PINEO CHASE, *Secretary*

The Providence Medical Association regular monthly meeting was called to order by the President, Dr. William B. Cutts, at 9:05 P. M., April 2, 1923. The records of the last meeting were read and approved.

On the motion of Dr. C. O. Cooke, Mr. Pritchard spoke on the proposed Doctors' Exchange, explaining its method of operation, advantages, and answering numerous questions.

The paper of the evening was read by Dr. M. L. Mullaney, on "Pyorrhea; Its Cause and Treatment." He outlined the anatomy and physiology of the teeth and their immediately adjacent structures, and the types of pyorrhea or inflammation affecting the investing membranes of the teeth. After discussing several factors commonly suggested for the etiology of pyorrhea, as bacterial infection, systemic diseases, and faulty diet, he laid great stress on malocclusion of the teeth and outlined the principal errors in the impinging and moving of the opposing teeth upon each other. In his opinion the treatment consists in proper dental work. Dr. Mullaney illustrated his theory by numerous lantern slides.

Dr. Frank E. Peckham opened the discussion, questioning the importance of these theories and stressing that of diet. Dr. Gosline also discussed the paper. Dr. H. J. Connor demonstrated the Schick test in several subjects. Dr. F. M. Adams reported several cases received X-ray treatment of tonsilar trouble and bad results. Dr. A. A. Barrows reported a case of intestinal obstruction in bad condition receiving prompt relief of the dangerous symptoms when a jejunostomy was done.

Dr. A. T. Jones presented two specimens; one a sharp needle which a child had swallowed and passed by rectum without trouble; the other a sharp piece of material, probably bone, which had caused a perforation of the gut.

Meeting adjourned at 10:50 P. M. Attendance, 50 members and guests. Collation was served.

Respectfully submitted,
PETER PINEO CHASE, *Secretary*

The regular monthly meeting of the Providence Medical Association was held at the Medical Library, 106 Francis Street, Monday evening, May 7, 1923, at 8:45 o'clock.

Program: Address—"Chinese Medicine, Ancient and Modern," Dr. E. H. Hume, Dean of the College of Medicine of Yale in China.

The Standing Committee has aproved the application of Dr. Frank I. Matteo.

DR. PETER PINEO CHASE, *Secretary*

WASHINGTON COUNTY MEDICAL SOCIETY.

The quarterly meeting of the Washington County Medical Society was held at the Elm Tree Inn, Westerly, Thursday morning, April 12, 1923.

One new application for membership was received.

The Secretary stated that since the last quarterly meeting three of our members had joined the State Society.

Notice was made of the death of Dr. Harold Metcalf of Wickford, and the following resolutions were adopted:

OBITUARY

"Resolutions on the death of Dr. Harold Metcalf, adopted by the Washington County Medical Society, April 12, 1923.

"Whereas, The Great and Supreme Ruler of the Universe has, in His infinite wisdom, removed

from among us one of our most worthy fellows, Dr. Harold Metcalf, and

"Whereas, The long and intimate relations with him in the faithful discharge of his duties to this Society, makes it eminently befitting that we record our appreciation of him; therefore, be it

"Resolved, That the wisdom and ability which he exercised in the aid of our Society, by service, contributions, and wise counsel, will be held in grateful remembrance;

"Resolved, That the removal of Dr. Metcalf from our midst leaves a vacancy and shadow that will be deeply realized by all the members of our Society, and will prove a serious loss to the State Society as well;

"Resolved, That with deep sympathy with the bereaved relatives of the deceased, as well as the large constituency that he so long and faithfully served during his life as an honest, upright and faithful physician, we express our hope that even so great a loss to us all may be overruled for good by Him who doeth all things well;

"Resolved, That a copy of these resolutions be spread upon the records of this Society, a copy printed in the RHODE ISLAND MEDICAL JOURNAL, and a copy forwarded to the bereaved family.

"A. B. BRIGGS, M.D.,
"S. C. WEBSTER, M.D.,
"W. A. HILLARD, M.D.,
"Committee."

Dr. Frank E. Peckham of Providence, President of the Rhode Island Medical Society, paid us an official visit and spoke on the subject of "Lower Back Conditions" and demonstrated a few of the many exercises he uses—and for this he received a rising vote of thanks.

Adjourned and dined.

W. A. HILLARD, M.D., *Secretary.*

WOONSOCKET DISTRICT MEDICAL SOCIETY.

A meeting of the District Medical Society was held Thursday, April 26, at St. James Hotel. Discussion, "Hospital Standardization."

T. S. FLYNN, *Secretary*

RHODE ISLAND MEDICO-LEGAL SOCIETY.

The regular April meeting of the Society was held at the Medical Library, 106 Francis Street, Providence, on Thursday, April 26, 1923, at 5:00 P. M. Light supper at 6:30.

Dr. Charles Carroll, Deputy Director of the Rhode Island State Board of Vocational Education, lead a discussion on "Rehabilitation—The Joint and Several Interests of Lawyer, Doctor, and Educator."

JACOB S. KELLEY, M.D., *Secretary*

HOSPITALS

PROVIDENCE CITY HOSPITAL.

Dr. Ralph DiLeone finished his service as interne on April 1st.

On April 12th Dr. Jack V. Treynor began a three months service. The regular monthly meeting of the Staff Association was held at the City Hospital on April 18th, at which meeting Dr. Alfred Potter read a paper on "Insuflation of CO2 Gas as an Aid in Diagnosis in Gynecological Conditions."

The Board of Hospital Commissioners have elected the following men to the Staff since January 1st.

Dr. Raymond G. Bugbee, transferred from the Department of Urology to fill the position of Visiting Anaesthetist, In-Patient and Out-Patient. Dr. Guy William Wells was elected Visiting Physician to the Out-Patient Department, Department of Medicine, to fill the vacancy made by the resignation of Dr. Frank Berry.

RHODE ISLAND HOSPITAL.

DR. PICKLES

The regular monthly meeting of the Internes' Association was held on April 19, 1923. Mr. Raymand Walsh gave a very interesting and highly instructive talk on "The Physician in Court," describing in detail the duties and privileges of the medical man as a common and expert witness.

On May 1, 1923, Drs. Earl A. Bowen and Henry McCusker completed their service as internes at this hospital. Dr. Bowen, after a short vacation, will become house officer at the Providence Lying-In Hospital, while Dr. McCusker has started practice in this city.